

Medical Coverage Policy | Signal-Averaged Electrocardiography (SAECG)



EFFECTIVE DATE: 12|02|2001
POLICY LAST UPDATED: 05|04|2022

OVERVIEW

Signal-averaged electrocardiography (SAECG) is a technique involving computerized analysis of small segments of a standard ECG to detect abnormalities, termed ventricular late potentials (VLPs), that would be otherwise obscured by “background” skeletal muscle activity.

MEDICAL CRITERIA

Not applicable

PRIOR AUTHORIZATION

Not applicable

POLICY STATEMENT

Medicare Advantage Plans

Signal-averaged electrocardiography is not covered as the evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

Commercial Products

Signal-averaged electrocardiography is not medically necessary as the evidence is insufficient to determine that the technology results in an improvement in the net health outcome.

COVERAGE

Benefits may vary between groups/contracts. Please refer to the appropriate Evidence of Coverage, Subscriber Agreement or Benefit Booklet for not medically necessary coverage/benefits.

BACKGROUND

Ventricular late potentials (VLPs) reflect aberrant, asynchronous electrical impulses arising from viable isolated cardiac muscle bordering an infarcted area and are thought to be responsible for ventricular tachyarrhythmias. Therefore, VLPs, as measured by SAECG, have been investigated as a risk factor for arrhythmic events in patients with a variety of cardiac conditions, including cardiomyopathy and prior history of myocardial infarction (MI). Patients considered at high risk of ventricular arrhythmias and thus sudden death may be treated with drugs to suppress the emergence of arrhythmias or with implantable cardiac defibrillators (ICDs) to promptly detect and terminate tachyarrhythmias when they occur. Because sudden cardiac death, whether from arrhythmias or pump failure, is one of the most common causes of death after a previous MI, there is intense interest in risk stratification to target therapy. Patient groups are divided into those who have not experienced a life-threatening arrhythmia (i.e., primary prevention) and those who have (i.e., secondary prevention). SAECG is just one of many risk factors that have been investigated. Others include left ventricular ejection fraction (LVEF), arrhythmias detected on Holter monitor or electrophysiologic studies, heart rate variability, and baroreceptor sensitivity. T-wave alternans is another technique for risk stratification; it measures beat-to-beat variability, while SAECG measures beat-averaged conduction.

SAECG has not demonstrated improvements in health outcomes and remains not medically necessary for all indications.

CODING

The following code is not covered for Medicare Advantage Plans and not medically necessary for Commercial Products:

93278 Signal-averaged electrocardiography (SAECG), with or without ECG

RELATED POLICIES

Not applicable

PUBLISHED

Provider Update, July 2022

Provider Update, December 2021

Provider Update, June 2020

Provider Update, January 2020

Provider Update, November 2018

Provider Update, July 2017

REFERENCES

1. Signal-averaged electrocardiography. US Department of Health and Human Services, Health Technology Assessment. 1998; Number 11 (Publication No. PB98-137227).
2. Hohnloser SK, Zabel M. Identification of patients after myocardial infarction at risk of life-threatening arrhythmias. *Eur Heart J* 1999; 1(suppl C):C11-20.
3. Bailey JJ, Berson AS, Handelsman H et al. Utility of current risk stratification tests for predicting major arrhythmic events after myocardial infarction. *J Am Coll Cardiol* 2001; 38(7):1902-11.
4. Grimm W, Christ M, Bach J et al. Noninvasive arrhythmia risk stratification in idiopathic dilated cardiomyopathy: results of the Marburg Cardiomyopathy Study. *Circulation* 2003; 108(23):2883-91.
5. Huikuri HV, Tapanainen JM, Lindgren K et al. Prediction of sudden cardiac death after myocardial infarction in the beta-blocking era. *J Am Coll Cardiol* 2003; 42(4):652-8.
6. Bauer A, Guzik P, Barthel P et al. Reduced prognostic power of ventricular late potentials in post-infarction patients of the reperfusion era. *Eur Heart J* 2005; 26(8):755-61.
7. Touboul P. A decade of clinical trials; CAST to AVID. *Eur Heart J* 1999; 1(suppl C):C2-10.
8. Cairns JA, Connolly SJ, Roberts RR, Toomey P, et al. Canadian Amiodarone Myocardial Infarction Arrhythmia Trial Investigators. *Lancet* 1997; 349(9053):675-82.
9. Julian DG, Camm AJ, Frangin G, et al. European Myocardial Infarction Amiodarone Trial Investigators. *Lancet* 1997; 349(9053):667-74.
10. Moss AJ, Hall WJ, Cannom DS, et al. Multicenter Automatic Defibrillator Implantation Trial Investigators. *N Engl J Med* 1996; 335(26):1933-40.
11. Gregoratos G, Abrams J, Epstein AE et al. ACC/AHA/NASPE 2002 Guideline Update for Implantation of Cardiac Pacemakers and Antiarrhythmia Devices--summary article: a report of the American College of Cardiology/American Heart Association Task Force on Practice Guidelines (ACC/AHA/NASPE Committee to Update the 1998 Pacemaker Guidelines). *J Am Coll Cardiol* 2002; 40(9):1703-19.
12. Bigger JT, Jr, Poole DP, et al. Coronary Artery Bypass Graft (CABG) Patch Trial Investigators. *N Engl J Med* 1997; 337(22):1569-75.
13. Ueno A, Kobayashi Y, Yodogawa K et al. A prospective study on the risk-stratification for patients with non-sustained ventricular tachycardia using a novel algorithm. *Circ J* 2007; 71(7):1107-14.
14. Moss AJ, Zareba W, Hall WJ et al. Prophylactic implantation of a defibrillator in patients with myocardial infarction and reduced ejection fraction. *N Engl J Med* 2002; 346(12):877-83.
15. Cain MA, Arnsdorf MF, et al. Signal-averaged electrocardiography. *J Am Coll Cardiol* 1996; 27(1):238-49.
16. Kamath GS, Zareba W, Delaney J et al. Value of the signal-averaged electrocardiogram in arrhythmogenic right ventricular cardiomyopathy/dysplasia. *Heart Rhythm* 2011; 8(2):256-62.
17. Rejda K, Rubaj A, Glowinski A et al. Analysis of ventricular late potentials in signal-averaged ECG of people with epilepsy. *Epilepsia* 2011; 52(11):2118-24.

18. Schuller JL, Lowery CM, Zipse M et al. Diagnostic utility of signal-averaged electrocardiography for detection of cardiac sarcoidosis. *Ann Noninvasive Electrocardiol* 2011; 16(1):70-6.
19. Militaru C, Donoiu I, Ionescu DD. P Wave Signal-Averaged ECG in Normal Population and in Patients with Converted Atrial Fibrillation. *Ann Noninvasive Electrocardiol* 2011; 16(4):351-6.
20. Furukawa Y, Yamada T, Okuyama Y et al. Increased intraatrial conduction abnormality assessed by P-wave signal-averaged electrocardiogram in patients with Brugada syndrome. *Pacing Clin Electrophysiol* 2011; 34(9):1138-46.
21. Shturman A, Bickel A, Atar S. The predictive value of P-wave duration by signal-averaged electrocardiogram in acute ST elevation myocardial infarction. *The Israel Medical Association journal : IMAJ* 2012; 14(8):493-7.
22. Zipes DP, Camm AJ, Borggrefe M et al. ACC/AHA/ESC 2006 Guidelines for Management of Patients With Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death: a report of the American College of Cardiology/American Heart Association Task Force and the European Society of Cardiology Committee for Practice Guidelines (writing committee to develop Guidelines for Management of Patients With Ventricular Arrhythmias and the Prevention of Sudden Cardiac Death): developed in collaboration with the European Heart Rhythm Association and the Heart Rhythm Society. *Circulation* 2006; 114(10):e385-484.
23. Goldberger JJ, Cain ME, Hohnloser SHAHAACoCFHRSSoNRSTfIPaRfSCD et al. A scientific statement from the American Heart Association Council on Clinical Cardiology Committee on Electrocardiography and Arrhythmias and Council on Epidemiology and Prevention. *J Am Coll Cardiol* 2008; 52(14):1179-99.

[CLICK THE ENVELOPE ICON BELOW TO SUBMIT COMMENTS](#)

This medical policy is made available to you for informational purposes only. It is not a guarantee of payment or a substitute for your medical judgment in the treatment of your patients. Benefits and eligibility are determined by the member's subscriber agreement or member certificate and/or the employer agreement, and those documents will supersede the provisions of this medical policy. For information on member-specific benefits, call the provider call center. If you provide services to a member which are determined to not be medically necessary (or in some cases medically necessary services which are non-covered benefits), you may not charge the member for the services unless you have informed the member and they have agreed in writing in advance to continue with the treatment at their own expense. Please refer to your participation agreement(s) for the applicable provisions. This policy is current at the time of publication; however, medical practices, technology, and knowledge are constantly changing. BCBSRI reserves the right to review and revise this policy for any reason and at any time, with or without notice. Blue Cross & Blue Shield of Rhode Island is an independent licensee of the Blue Cross and Blue Shield Association.

